



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/813,129	03/21/2001	Takeshi Nishiuchi	010337	1444

23850 7590 04/04/2003

ARMSTRONG, WESTERMAN & HATTORI, LLP  
1725 K STREET, NW  
SUITE 1000  
WASHINGTON, DC 20006

EXAMINER

BUEKER, RICHARD R

ART UNIT	PAPER NUMBER
1763	7

DATE MAILED: 04/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/813,129	NISHIUCHI ET AL.	
<b>Period for Reply</b>	Examiner	Art Unit	
	Richard Bueker	1763	
<i>-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --</i>			
<b>A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.</b>			
<ul style="list-style-type: none"> <li>- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.</li> <li>- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.</li> <li>- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.</li> <li>- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).</li> <li>- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).</li> </ul>			
<b>Status</b>			
1) <input checked="" type="checkbox"/> Responsive to communication(s) filed on <u>24 January 2003</u> .			
2a) <input type="checkbox"/> This action is <b>FINAL</b> .		2b) <input checked="" type="checkbox"/> This action is non-final.	
3) <input type="checkbox"/> Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.			
<b>Disposition of Claims</b>			
4) <input checked="" type="checkbox"/> Claim(s) <u>1-6</u> is/are pending in the application.			
4a) Of the above claim(s) _____ is/are withdrawn from consideration.			
5) <input type="checkbox"/> Claim(s) _____ is/are allowed.			
6) <input checked="" type="checkbox"/> Claim(s) <u>1-6</u> is/are rejected.			
7) <input type="checkbox"/> Claim(s) _____ is/are objected to.			
8) <input type="checkbox"/> Claim(s) _____ are subject to restriction and/or election requirement.			
<b>Application Papers</b>			
9) <input type="checkbox"/> The specification is objected to by the Examiner.			
10) <input type="checkbox"/> The drawing(s) filed on _____ is/are: a) <input type="checkbox"/> accepted or b) <input type="checkbox"/> objected to by the Examiner.			
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).			
11) <input type="checkbox"/> The proposed drawing correction filed on _____ is: a) <input type="checkbox"/> approved b) <input type="checkbox"/> disapproved by the Examiner.			
If approved, corrected drawings are required in reply to this Office action.			
12) <input type="checkbox"/> The oath or declaration is objected to by the Examiner.			
<b>Priority under 35 U.S.C. §§ 119 and 120</b>			
13) <input type="checkbox"/> Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).			
a) <input type="checkbox"/> All b) <input type="checkbox"/> Some * c) <input type="checkbox"/> None of:			
1. <input type="checkbox"/> Certified copies of the priority documents have been received.			
2. <input type="checkbox"/> Certified copies of the priority documents have been received in Application No. _____.			
3. <input type="checkbox"/> Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).			
* See the attached detailed Office action for a list of the certified copies not received.			
14) <input type="checkbox"/> Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).			
a) <input type="checkbox"/> The translation of the foreign language provisional application has been received.			
15) <input type="checkbox"/> Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.			
<b>Attachment(s)</b>			
1) <input type="checkbox"/> Notice of References Cited (PTO-892)		4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____	
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)		5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)	
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____		6) <input type="checkbox"/> Other: _____	

Claims 1-3 and 6/1 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants' description of the prior art taken in view of Yamada (JP 7-070738). Applicants (see Fig. 9 and pages 1-3 of the specification) describe a prior art apparatus for coating rare earth metal-based permanent magnets, wherein the magnets are placed in a mesh net barrel tumbler, which is rotated above a vacuum evaporation source of metal coating material such as aluminum. The Fig. 9 apparatus does not support the barrel outside a horizontal rotational axis of a support member, so that the distance between the barrel and the vacuum evaporation source is varied by rotating the support member. Yamada also discloses a vacuum evaporation coating apparatus in which substrates are tumbled in barrel tumblers above a vacuum evaporation source. Each barrel is supported outside a horizontal rotational axis of a support member, so that the distance between the barrel and the vacuum evaporation source is varied. It would have been obvious to one skilled in the art to modify the prior art process and apparatus described by applicants by using rotating barrels of the type taught by Yamada to hold the substrates, because Yamada teaches that vacuum evaporated coatings can successfully be applied in his barrels, and the number of parts that can be treated simultaneously can be increased by increasing the number of barrels, which is made possible by his apparatus design.

Claims 4-5 and 6/4 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants' description of the prior art taken in view of Yamada (JP 7-070738) for the reasons stated above, and taken in further view of Humphrey (5,201,956) and Yira (6,326,056). Yamada (Figs. 7-10) illustrates a prior art mesh net tumbler, which

comprises plural barrels fastened together to form a larger tumbler having plural accommodating sections that are rotated around a horizontal rotational axis. The distance between the accommodating sections and the evaporation source is varied by rotating. Humphrey (Fig. 1) and Yira (Figs. 4-6) each disclose a mesh net barrel tumbler for tumbling small substrates during vapor coating, wherein the barrel is divided into plural accommodating sections. Yira also teaches (col. 6, lines 38-48) that his divided barrel can be used for other types of coatings on other types of articles. The distance between the accommodating sections and the evaporation source is varied by rotating, in the same manner as that of Yamada's Fig. 7 apparatus. It would have been obvious to use a mesh net barrel tumbler that is divided in the manner taught by either Humphrey or Yira as a substitute for the tumbler of either Fig. 7 of Yamada or Fig. 1 of Yamada, because it would give the same benefits of increased tumbling and increased capacity.

Claims 1, 3 and 6/1 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Baer (3,517,644). Baer (see Fig. 1) discloses a vacuum evaporation coating apparatus with a mesh net barrel tumbler that is supported circumferentially outside a horizontal rotation axis (19) of a support member rotatable about said axis. The barrel has an axis set at an angle to horizontal, and this causes the distance between the barrel and an evaporation source to change as the barrel is rotated. The apparatus of Baer has an inherent capability of being used to coat the type of articles recited in the claims with the type of coating materials recited in the claims.

Claims 1, 3 and 6/1 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants' description of the prior art taken in view of Baer (3,517,644). It would have been obvious to use a barrel of the type disclosed by Baer to apply the magnet coating described in applicants' description of the prior art.

Claims 4, 5 and 6/4 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants' description of the prior art and/or Baer (3,517,644) taken in view of DDR 244993 and Fujita (JP 57-188677). Applicants (see Fig. 9 and pages 1-3 of the specification) describe a prior art apparatus for coating rare earth metal-based permanent magnets, wherein the magnets are placed in a mesh net barrel tumbler, which is rotated above a vacuum evaporation source of metal coating material such as aluminum. Also, Baer discloses a vacuum evaporation coating apparatus that uses a mesh net barrel tumbler to tumble the substrates above the vacuum evaporation source. The apparatus of Baer has an inherent capability of being used to coat the type of article recited in the claims with the type of coating material recited in the claims. Alternatively, it would have been obvious to use the barrel of Baer to deposit the metal magnet coating described in applicant's description of the prior art. Applicants' Fig. 9 apparatus and Baer's apparatus do not include divisions inside the barrel. The DDR patent and Fujita, however, teach the use of dividers inside a barrel tumbler to enhance the tumbling of articles to be coated. It would have been *prima facie* obvious to one skilled in the art to use a barrel with dividers of the type taught by the DDR patent and Fujita in the apparatus of applicants' prior art Fig. 9 or Baer, because such dividers were known in the prior art as a way of increasing tumbling motion in a barrel tumbler.

Art Unit: 1763

Applicants have argued that none of the previously cited references teaches or suggests an evaporating section for at least one depositing material selected from the group consisting of aluminum, zinc, tin and magnesium. It is noted, however, that the recitation of a particular material to be evaporated in a vacuum evaporation apparatus is a recitation of intended use that does not so limit the claims. Also, applicants' description of the prior art indicates that it was conventional practice to evaporate a metal as coating material for coating rare earth based permanent magnets. It is noted also that the recitation of rare earth based permanent magnets as the type of article to be coated is also a recitation of intended use that does not so limit the present apparatus claims.

Applicants have argued that Fig. 2 of the DD 244993 reference clearly indicates that the barrel is not divided into separate chambers. It is noted, however, that claim 4 as presently written recites that the tubular barrel is "divided into two or more accommodating sections", and the barrel of Fig. 2 of DD 244993 is divided into plural "accommodating sections". While claim 4 does not recite "separate chambers" as argued, the DD 244993 barrel is also divided into separate chambers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (703) 308-1895. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers

Art Unit: 1763

for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

*Richard Bueker*

Richard Bueker  
Primary Examiner  
Art Unit 1763

March 28, 2003